



UNITED STATES PATENT AND TRADEMARK OFFICE

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Appl. no.: 09 478.616

Filed: January 4, 2000

Examiner: Zidia T. Pittman

Art unit: 1725

Confirmation no.: 1912

Applicant: Laurent et al.

For: Packaging materials
with a polyolefin layer

Attorney docket no.: KWPTP001US2

APPEAL BRIEF

This appeal brief is filed pursuant to an Office Action dated March 5, 2002 (paper no. 15) and pursuant to a Notice of Appeal filed September 10, 2002 (paper no. 18). This brief and the accompanying Appendix are submitted in triplicate. This brief is accompanied by the fee set forth in 37 C.F.R. section 1.17(c).

(1) Real party in interest

The real party in interest, as set forth in an assignment recorded at reel 010515, frame 0187, is Convenience Food Systems B.V., a corporation organized and existing under the laws of The Netherlands and having an office for the transaction of business at Beekakker 11, NL-5761 En Bakel, Netherlands.

(2) Related appeals and interferences

No other appeals or interferences are known which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of claims

This application was filed January 4, 2000 with a preliminary amendment (paper no. 6) canceling claims 1-16 and adding claims 17-33. By an Amendment filed January 2, 2002 (paper no. 13), claims 17, 18, 19, 25 and 26 were amended. Claims 17-33 are pending at the present time. All of claims 17-33 were finally rejected in an Office Action dated March 5, 2002 (paper no. 15). Appeal was taken as to all pending claims, namely claims 17-33 (paper no. 18).

(4) Status of amendments

No amendments were filed subsequent to final rejection.

(5) Summary of invention

The invention, in one embodiment, comprises a packaging material comprising:

a foam sheet (B in Figs. 1-5: page 9, line 4: page 10, line 4) of a first polyolefin, said foam sheet having first and second sides:

a first coating film (A in Figs. 1-5: page 9, line 4: page 10, line 5) comprising at least one surface layer of a second polyolefin; and

a first bonding layer (30 in Figs. 1-5: page 9, lines 4-6: page 10, line 5) of a third polyolefin between the first side of the foam sheet (B) and the surface layer of the first coating film (A);

wherein the first, second, and third polyolefins are all based on a same main monomer.

The invention, in another embodiment, comprises a packaging material usable for forming self-supporting packaging items, which packaging material has the form of a quasi-endless rollable web, the packaging material produced by a method comprising the steps of:

producing (2 in Fig. 1: page 6, lines 9-10) by expansion and extrusion a foam sheet (B in Fig. 1: page 9, line 4: page 10, line 4) of a first polyolefin, said foam sheet (B) having first and second sides;

film (A in Figs. 1-2: page 9, line 4: page 10, line 5) comprising at least one surface layer of a second polyolefin:

producing (3 in Figs. 1-2: page 6, lines 10-12) by extrusion, between the first side of the foam sheet (B) and the surface layer of the first coating film (A), a first bonding layer (30 in Figs. 1-2: page 9, lines 4-6; page 10, line 5) of a third polyolefin, and immediately after extrusion applying pressure (31 in Fig. 1, page 6, lines 13-14) to the foam sheet (B), the first coating film (A), and the first bonding layer (30);

wherein the first, second, and third polyolefins are all based on a same main monomer:

yielding the foam layer (B) of the first polyolefin coated on at least one side with the first coating film (A).

The invention, in yet another embodiment, comprises not only a bonding layer and coating film on one side of the foam sheet, but also a bonding layer and coating film on the other side of the foam sheet (page 4, line 31 to page 5, line 7: page 7, lines 21-23).

(6) Issues

Is the Examiner justified in rejecting claims 17-33 as supposedly obvious over a combination of European Patent Office publication 0 344 726 to Tsubone et al. (hereinafter "EP '726") and US Pat. No. 4 440 824 to Bonis (hereinafter "Bonis")?

Is the Examiner justified in combining EP '726 and Bonis?

(7) Grouping of claims

Without conceding a lack of patentable distinction therebetween, and solely to expedite this appeal, for purposes of this appeal applicant will permit claims 20-29 to stand and fall together with claim 19.

Applicant respectfully requests that the Examiner be directed to withdraw the rejection of claims 17-33 and to allow claims 19-33.

with claim 30.

(8) Argument

Each claim has been rejected over a combination of EP '726 and Bonis. It is noted at the outset that each of these references is of record due to citation thereof by the applicant in an Information Disclosure Statement.

General discussion. Because certain limitations (such as the same-monomer limitation) are common to all claims, it is efficient to discuss certain points regarding the references generally prior to discussing the claims individually.

Adhesive. A first area of some difficulty arises because in the present rejection (as well as in a previous office action) the Examiner has treated "adhesive" as synonymous with other terms with which it is not.

"Adhesive" is defined as "tending to adhere; sticky" or "a substance, such as paste or cement, that provides or promotes adhesion."

"Adhesion" is defined as "the act or state of adhering."

"Adhere" is defined as "to stick fast by or as if by suction or glue."

As an example of this difficulty, consider page 3, lines 6-8 in which the Examiner says:

EP '726 differs from the present invention in that it does not disclose the combination of co-extrusion and adhesive bonding of the foam layer to the coating films.

From this sentence it appears the Examiner is under the impression that the word "adhesive" appears somewhere in the rejected independent claims. Likewise it appears the Examiner is under the impression that "co-extrusion" appears in the rejected independent claims as a way of bonding the foam layer to the coating film. Each impression is false.

Notably, the word "adhesive" is wholly absent from any of the independent claims. (The term "adhesive" does appear in dependent claims 25, 26 and 27 but in a context that is unrelated to the stated grounds for rejection.) EP '726 does, however, mention "adhesion" at page 4, line 22.

Likewise the independent claims talk about a different way (not co-extrusion) to bonding the foam layer to the coating film.

It thus appears that the Examiner is (improperly) reading the word "adhesive" into the independent claims, then finds "adhesive" in the reference, and thus rejects the independent claims. It also appears that the Examiner is (improperly) reading into the independent claims that the foam layer and coating film are bonded through "co-extrusion", then finds "co-extrusion" in the reference, and thus rejects the independent claims.

Such reading into the independent claims is improper and leads to incorrect analysis as detailed below.

The Examiner cites Bonis for its mention of an "adhesive tie layer." Importantly Bonis says that its "two intermediate adhesive tie layers 26" are each made of a "rubber modifying plastomer sold by Philips Chemical Company under the trade designation Solprene 416P" (col. 2, lines 19-21 and lines 24-26). The adhesive tie layers 26 of Bonis may be seen in Bonis Fig. 2.

Bonis actively teaches away five and ten times from the claimed invention. The Bonis disclosure also sets forth how the Bonis structure is laid out. In Fig. 3 there is a heated container 32 (col. 2, lines 46-48) containing the rubber modifying plastomer adhesive tie layer just mentioned. From container 32 the rubber modifying plastomer adhesive passes through conduits 37, 38 (col. 2, lines 48-49) where they are supplied to "coextrusion block 42" (col. 2, line 49).

It is particularly notable that the structure resulting from the Bonis process violates and teaches

main monomer" in at least five distinct ways.

First, Bonis says that "the middle layer is made of the polypropylene" while the outer layer is "high-impact polystyrene" (col. 2, lines 54-55). These are based on two distinct monomers (propylene and styrene) rather than a same main monomer. And styrene is not an olefin at all. So this violates and teaches away from the claim limitation twice.

Second, the material that Bonis teaches should be placed between these two layers is rubber modifying plastomer adhesive. This material is not an olefin. It is not made of the same main monomer as the layer above it. And it is not made of the same main monomer as the layer below it. So this violates and teaches away from the claim limitation three times.

As will be discussed in some detail below, claims 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 and 29 all contain the claim limitation that "first, second, and third polyolefins are all based on a same main monomer" and the fact that Bonis teaches away from this limitation in five different ways makes Bonis singularly inappropriate as a reference herein.

The structure in Bonis Fig. 2 also provides a second outer layer of high-impact polystyrene. This layer and the middle layer of polypropylene are based on two distinct monomers (propylene and styrene) rather than a same main monomer. As mentioned above, styrene is not an olefin at all. So this violates and teaches away from the claim limitation two more times.

Finally, the structure in Bonis Fig. 2 provides a second rubber modifying plastomer adhesive between the second outer layer and the middle layer. As mentioned above, this material is not an olefin. It is not made of the same main monomer as the layer above it. And it is not made of the same main monomer as the layer below it. So this violates and teaches away from the claim limitation three more times.

claim limitation that "first, second, and third polyolefins are all based on a same main monomer" but also contain a claim limitation that "the fourth and fifth polyolefins are all based on the same main monomer as that of the first, second, and third polyolefins." This fact means that Bonis teaches away from those claims in ten different ways. Bonis is simply inappropriate as a reference herein.

The Examiner states, without support, that "it would have been obvious to have used ... Bonis" to manufacture the claimed structure. But for this statement to be believed, the Examiner would have to explain away the five different ways that Bonis teaches away from many of the claims, and the ten different ways that Bonis teaches away from the rest of the claims. No such explanation has been provided.

Why "first, second, and third polyolefins ... all based on a same main monomer" is significant. As mentioned above, each of the claimed structures is specifically limited in that the same main monomer (an olefin) is used as the basis for the polymers of the foam sheet, the first coating film, and the first bonding layer. Furthermore, some of the claimed structures are further specifically limited in that the same main monomer (the same olefin) is used as the basis for the polymers of a second coating film and a second bonding layer.

As it turns out, this arrangement gives rise to an outstandingly good bond between the various layers without having to resort to adhesive materials as are found throughout the prior art (including Bonis). Among other things, the employment of an adhesive layer leads to a structure that cannot be readily recycled due to the foreign material (as compared with same-monomer materials). What's more, the adhesives generally have a lower melting temperature than the layers being adhered, and as a result the adhesively-constructed material is more susceptible to heat, and there is the risk of delamination and weakening.

What are the "usual" lamination techniques of EP '726? EP '726 refers (e.g. at page 4, line

year 1988), the "usual" techniques involved adhesive layers or involved co-extrusion. The Examiner has not provided, and so far as the undersigned is aware cannot provide, anything to support a view that the "usual" lamination techniques in 1988 were those set forth in the independent claims (three layers all based on the same monomer, etc.).

The claimed structure does not employ an adhesive layer, but instead uses a same-monomer material. The claimed structure does not employ co-extrusion, since the term "co-extrusion" means simultaneous extrusion of (here) the coating film and the foam sheet without any layer in between. So EP '726 reference does not anticipate, for reasons just discussed.

Stated differently, co-extrusion means that the foam sheet and the coating film are extruded simultaneously and adjacent to each other. But the claimed structure has a layer between the foam sheet and the coating film, which means that the foam sheet and the coating film are not extruded simultaneously and adjacent to each other. Bluntly put, it is by definition impossible to use co-extrusion of the foam sheet and the coating film (as mentioned in EP '726) to yield the claimed structure.

The Bonis process. Bonis shows a packaging material that is co-extruded. The co-extrusion is of a layer of polyolefin, a layer of high-impact polystyrene and a tie layer of rubber modifying plastomer. There is no hint or suggestion of the notion that three layers ought to be based on polyolefins each based on a same monomer. One skilled in the art would also appreciate that polystyrene is not a polyolefin. Even if polystyrene were a polyolefin (or if the claim were to be somehow interpreted to read out the limitation that a polyolefin is employed), the main monomer for polystyrene is incapable of being the same monomer as that used to make the tie layer and is incapable of being the same monomer that is used to make the polyolefin layer.

There are reasons why the two references ought not to be combined. It should be appreciated that the packaging material of Bonis does not include a foamed layer, while EP '726

teaches coating layers of polystyrene, while EP '726 does not and instead teaches coating layers of a polyolefin.

If a person skilled in the art were to have the intention to combine a foam layer of a polyolefin with another polyolefin layer (as the Examiner claims to find in EP '726) by means of *lamination*, such a person would not take into consideration a publication (Bonis) in which only co-extrusion is taught and in which there is no foamed layer at all. The only reason why a person would do so at the present time, it is suggested, would be if someone were to engage in hindsight given the teachings of the present invention.

But even if we were to assume for sake of discussion the unlikely combining of the two references, it is important to consider that what would result is a laminate in which the foam layer and the coating film are held together with an *adhesive* which would have a lower melting point than the materials on either side, and they might not both be polyolefins (since Bonis teaches a coating film that is not a polyolefin). The adhesive might well lead to a structure that is less thermally stable. The resulting sandwich, with a foreign material between two layers that might have been based on the same monomer, would be less amenable to recycling.

The temperature stability issue is subtle (an issue apparently not addressed in Bonis) and important where food packaging is concerned. EP '726 is explicitly directed toward food containers which withstand "use in a microwave oven or as a retort food container" (Abstract). Like EP '726, the claimed invention is directed to packaged food items which may be exposed to cooking temperatures or to microwave ovens. If all three layers are made of the same main monomer they will tend to have roughly the same melting point in all three layers, and there is no particular reason the laminate structure would delaminate when exposed to such temperatures and heating.

In contrast, where the Bonis-type adhesive is used, there is no reason to think (and no teaching in

of the adhesive. Furthermore where the Bonis-type layers on either side of the adhesive are used, one of which is urged to be polystyrene and the other an olefin, there is again no reason to think (and no teaching in Bonis to think) that the polystyrene would have the same melting point as the polyolefin layer. There are many reasons to wonder whether the Bonis structure might be much more at risk of delamination when exposed to temperature increases, as compared with the claimed structure.

This is yet another reason why one skilled in the art would not combine Bonis (which apparently ignores temperature stability issues) with EP '726 (which, like the claimed invention, explicitly recognizes such issues).

The claims will now each be discussed in detail.

Claim 17 is:

A packaging material usable for forming self-supporting packaging items, which packaging material has the form of a quasi-endless rollable web, the packaging material produced by a method comprising the steps of:

producing by expansion and extrusion a foam sheet of a first polyolefin, said foam sheet having first and second sides;

producing by extrusion or coextrusion a first coating film comprising at least one surface layer of a second polyolefin;

producing by extrusion, between the first side of the foam sheet and the surface layer of the first coating film, a first bonding layer of a third polyolefin, and immediately after extrusion applying pressure to the foam sheet, the first coating film, and the first bonding layer;

wherein the first, second, and third polyolefins are all based on a same main monomer;

yielding the foam layer of the first polyolefin coated on at least one side with the first coating film.

above.

EP '726 teaches either "co-extrusion" or "adhesive" to bind the foam sheet and the coating film together, but "co-extrusion" would lead to the foam sheet and the coating film being juxtaposed while in the claimed structure they are separated by a bonding layer of a third polyolefin. "Adhesive" would lead to an adhesive between the foam sheet and the coating film, while in the claimed structure there is no adhesive in that position, only a "same monomer" polyolefin layer.

For all these reasons it is requested that the rejection be reversed.

Claim 18 is:

The packaging material of claim 17, wherein the method further comprises the steps of:

producing by extrusion or coextrusion a second coating film comprising at least one surface layer of a fourth polyolefin:

producing by extrusion, between the second side of the foam sheet and the surface layer of the second coating film, a second bonding layer of a fifth polyolefin, and immediately after extrusion applying pressure to the foam sheet and the second coating film:

wherein the fourth and fifth polyolefins are all based on the same main monomer as that of the first, second, and third polyolefins:

yielding the foam layer of the first polyolefin coated on one side with the first coating film and on the other side with the second coating film.

Bonis reaches away from the "same monomer" limitation in five additional distinct ways, as mentioned above, adding up to ten ways in which it teaches away.

EP '726 teaches either "co-extrusion" or "adhesive" to bind the foam sheet and the second coating film together, but "co-extrusion" would lead to the foam sheet and the coating film being juxtaposed while in the claimed structure they are separated by a second bonding layer of a fifth polyolefin. "Adhesive" would lead to an adhesive between the foam sheet and the second

monomer" polyolefin layer.

For all these reasons it is requested that the rejection be reversed.

Claim 19 is:

A packaging material comprising:

a foam sheet of a first polyolefin, said foam sheet having first and second sides:

a first coating film comprising at least one surface layer of a second polyolefin:

a first bonding layer of a third polyolefin between the first side of the foam sheet and the surface layer of the first coating film:

wherein the first, second, and third polyolefins are all based on a same main monomer.

Bonis reaches away from the "same monomer" limitation in five distinct ways, as mentioned above.

EP '726 teaches either "co-extrusion" or "adhesive" to bind the foam sheet and the coating film together, but "co-extrusion" would lead to the foam sheet and the coating film being juxtaposed while in the claimed structure they are separated by a bonding layer of a third polyolefin.

"Adhesive" would lead to an adhesive between the foam sheet and the coating film, while in the claimed structure there is no adhesive in that position, only a "same monomer" polyolefin layer.

For all these reasons it is requested that the rejection be reversed, and with it the rejection of claims 20-29.

Claim 30 is:

The packaging material of claim 19 further comprising:

a second coating film comprising at least one surface layer of a second polyolefin:

a second bonding layer of a fifth polyolefin between the second side of the foam sheet and the surface layer of the second coating film;

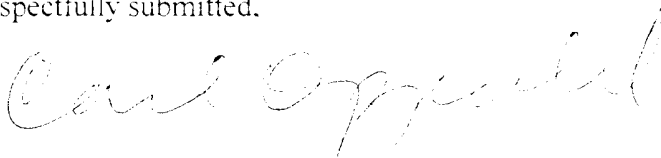
wherein the fourth and fifth polyolefins are all based on the same main monomer as that of the first, second, and third polyolefins.

Bonis reaches away from the "same monomer" limitation in five additional distinct ways, as mentioned above, adding up to ten ways in which it teaches away.

EP '726 teaches either "co-extrusion" or "adhesive" to bind the foam sheet and the second coating film together, but "co-extrusion" would lead to the foam sheet and the coating film being juxtaposed while in the claimed structure they are separated by a second bonding layer of a fifth polyolefin. "Adhesive" would lead to an adhesive between the foam sheet and the second coating film, while in the claimed structure there is no adhesive in that position, only a "same monomer" polyolefin layer.

For all these reasons it is requested that the rejection of claim 30 be reversed, and with it the rejection of claims 31-33.

Respectfully submitted,



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APPENDIX

1 17. A packaging material usable for forming self-supporting packaging items, which
2 packaging material has the form of a quasi-endless rollable web, the packaging material produced
3 by a method comprising the steps of:

4 producing by expansion and extrusion a foam sheet of a first polyolefin, said foam sheet having
5 first and second sides;

6 producing by extrusion or coextrusion a first coating film comprising at least one surface layer of
7 a second polyolefin;

8 producing by extrusion, between the first side of the foam sheet and the surface layer of the first
9 coating film, a first bonding layer of a third polyolefin, and immediately after extrusion applying
10 pressure to the foam sheet, the first coating film, and the first bonding layer;

11 wherein the first, second, and third polyolefins are all based on a same main monomer;

12 yielding the foam layer of the first polyolefin coated on at least one side with the first coating film.

13 The method of claim 17, wherein the method further comprises the steps of:

2 producing by extrusion or coextrusion a second coating film comprising at least one surface layer
3 of a fourth polyolefin;

4 producing by extrusion, between the second side of the foam sheet and the surface layer of the
5 second coating film, a second bonding layer of a fifth polyolefin, and immediately after extrusion
6 applying pressure to the foam sheet and the second coating film;

7 wherein the fourth and fifth polyolefins are all based on the same main monomer as that of the
8 first, second, and third polyolefins;

9 yielding the foam layer of the first polyolefin coated on one side with the first coating film and on
10 the other side with the second coating film.

1 19. A packaging material comprising:

2 a foam sheet of a first polyolefin, said foam sheet having first and second sides;

3 a first coating film comprising at least one surface layer of a second polyolefin;

4 a first bonding layer of a third polyolefin between the first side of the foam sheet and the surface
5 layer of the first coating film;

6 wherein the first, second, and third polyolefins are all based on a same main monomer.

20. The packaging material of claim 19 wherein the first coating film further comprises at least a
second layer coextruded with the surface layer.

21. The packaging material of claim 19 wherein the first bonding layer has a thickness of between

22. The packaging material of claim 19 wherein at least one of the outermost layers of the packaging material is a sealing layer comprising low density polyethylene.

23. The packaging material of claim 19 wherein at least one of the outermost layers of the packaging material is a sealing layer comprising peelable polyethylene.

24. The packaging material of claim 19 wherein the monomer of the polyolefin of the foam sheet is propylene.

1 25. The packaging material of claim 19 wherein the first coating film further comprises a sealing
2 layer of polyethylene, a barrier layer of ethylene-vinyl-alcohol-copolymer, the barrier layer of
3 ethylene-vinyl-alcohol-copolymer being between the sealing layer and the surface layer of the
4 second polyolefin, a first adhesive layer of a propylene copolymer, the first adhesive layer of a
5 propylene copolymer being between the barrier layer and the surface layer of the second
6 polyolefin, and a second adhesive layer of an ethylene copolymer, the second adhesive layer of an
7 ethylene copolymer being between the barrier layer and the sealing layer.

1 26. The packaging material of claim 19 wherein the first coating film further comprises a
2 protecting layer of polypropylene, a sealing layer of ethylene-vinyl-alcohol- copolymer, the sealing
3 layer of ethylene-vinyl-alcohol-copolymer being between the protecting layer and the surface layer
4 of the second polyolefin, a first adhesive layer of a propylene copolymer, the first adhesive layer
5 of a propylene copolymer being between the sealing layer and the surface layer of the second
6 polyolefin, and a second adhesive layer of a propylene copolymer, the second adhesive layer of a
7 propylene copolymer being between the sealing layer and the protecting layer.

27. The packaging material of claim 19 further comprising a sealing layer of polyethylene and an
adhesive layer between the sealing layer and the surface layer, the second polyolefin comprising
polypropylene

28. The packaging material of claim 19 wherein the polyolefin of the foam sheet is a mixture of long chain branching polypropylene and an ethylene-propylene copolymer.

29. The packaging material of claim 19 wherein the first coating film and the first bonding layer together have a thickness of between 5 and 60 mm.

1 30. The packaging material of claim 19 further comprising:

2 a second coating film comprising at least one surface layer of a fourth polyolefin;

3 a second bonding layer of a fifth polyolefin between the second side of the foam sheet and the
4 surface layer of the second coating film.

5 wherein the fourth and fifth polyolefins are all based on the same main monomer as that of the
6 first, second, and third polyolefins.

31. The packaging material of claim 30 wherein the second coating film further comprises at least a second layer coextruded with the surface layer.

32. The packaging material of claim 30 wherein the second bonding layer has a thickness of between 5 and 30 mm.

33. The packaging material of claim 30 wherein the first and second coating films are dissimilar.